

We claim:

- 1 1. An catheter, comprising:
 - 2 a hollow catheter body defining a proximal portion and a distal
 - 3 portion;
 - 4 at least one internal component within the distal portion of the
 - 5 catheter body;
 - 6 adhesive material located within the distal portion of the catheter
 - 7 body about the at least one internal component; and
 - 8 a torque transfer device located within at least a portion of the
 - 9 adhesive material and adapted to engage at least a portion of the at least one
 - 10 internal component and transfer torque to the at least one internal
 - 11 component.
- 1 2. A catheter as claimed in claim 1, wherein the catheter body
2 comprises a proximal member and a distal member secured to one another.
- 1 3. A catheter as claimed in claim 2, wherein the proximal member
2 and distal member are secured to one another in a butt bond arrangement.
- 1 4. A catheter as claimed in claim 3, further comprising:
 - 2 a butt bond sleeve having a portion located within and bonded
 - 3 to the proximal member and a portion located within and bonded to the distal
 - 4 member, at least a portion of the adhesive material being located within the
 - 5 butt bond sleeve.
- 1 5. A catheter as claimed in claim 4, wherein the torque transfer
2 device is located within the butt bond sleeve.
- 1 6. A catheter as claimed in claim 4, wherein the torque transfer
2 device comprises at least one rib projecting inwardly from the butt bond
- 3 sleeve.

1 7. A catheter as claimed in claim 2, wherein the proximal member
2 and distal member define respective proximal and distal portions and one of
3 the proximal member distal portion and the distal member proximal portion
4 overlaps the other, thereby defining an overlapping region.

1 8. A catheter as claimed in claim 7, wherein the proximal and distal
2 members are thermally bonded at the overlapping region.

1 9. A catheter as claimed in claim 7, wherein the torque transfer
2 device is located within the overlapping region.

1 10. A catheter as claimed in claim 1, further comprising:
2 a handle connected to the proximal portion of the catheter body.

1 11. A catheter as claimed in claim 1, wherein the at least one
2 internal component comprises a steering center support having at least one
3 steering wire connected thereto.

1 12. A catheter as claimed in claim 11, wherein the steering center
2 support includes a relatively wide proximal portion, a tapered central portion
3 and a relatively narrow distal portion.

1 13. A catheter as claimed in claim 1, wherein the torque transfer
2 device comprises a crimp sleeve disposed substantially around at least a
3 portion of the at least one internal component and in contact with the
4 adhesive material.

1 14. A catheter as claimed in claim 13, wherein the crimp sleeve
2 comprises a tubular sleeve.

1 15. A catheter as claimed in claim 13, wherein the crimp sleeve
2 comprises a substantially U-shaped sleeve.

1 16. A catheter as claimed in claim 13, wherein the crimp sleeve
2 comprises a substantially C-shaped sleeve.

1 17. A catheter as claimed in claim 13, wherein the crimp sleeve
2 comprises a substantially G-shaped sleeve.

1 18. A catheter as claimed in claim 1, wherein the torque transfer
2 device comprises a stiffener member being fixedly engaged to the at least
3 one internal component and in contact with the adhesive material.

1 19. A catheter as claimed in claim 18, wherein the stiffener member
2 comprises a generally flat member having a curved portion that is engaged to
3 the at least one internal component and a distally projecting arm portion that
4 projects into the adhesive material.

1 20. A catheter as claimed in claim 1, wherein the torque transfer
2 device comprises a laterally extending portion of the at least one internal
3 component, the laterally extending portion being disposed within the adhesive
4 material.

1 21. A catheter as claimed in claim 20, wherein the at least one
2 internal component comprises a steering center support having at least one
3 steering wire connected thereto.

1 22. A catheter as claimed in claim 1, wherein the torque transfer
2 comprises a sleeve having at least one inwardly extending rib member
3 located in the distal portion of the catheter body.

1 23. A steering mechanism for use with a catheter, comprising:
2 a steering center support defining a distal end; and
3 at least one steering wire connected to the center support a
4 sufficient distance from the distal end of the center support to provide a
5 straight distal end when the steering wire is activated to bend the center
6 support.

1 24. A catheter as claimed in claim 23, wherein the center support
2 includes a relatively wide proximal portion, a tapered central portion and a
3 relatively narrow distal portion, the steering wire being engaged to the
4 relatively narrow distal portion.

1 25. A catheter as claimed in claim 23, wherein the steering wire is
2 connected to the center support at a point located approximately one inch
3 from the distal end of the center support.

1 26. A catheter as claimed in claim 23, wherein the center support
2 includes a relatively wide proximal portion and a tapered distal portion, the
3 steering wire being connected to the relatively wide proximal portion.

1 27. An apparatus for creating a lesion in body tissue, comprising:
2 a catheter body having a distal assembly including a steering
3 mechanism adapted to cause the distal assembly to contact body tissue
4 along the length of the distal assembly; and
5 at least two electrodes supported by the distal assembly and
6 capable of creating generally elliptical lesions at least 2 cm long and 7 mm
7 deep which are substantially continuous and uniform in depth when a source
8 of radiofrequency energy simultaneously conveys radiofrequency energy to
9 the at least two electrodes.

1 28. An apparatus as claimed in claim 27, wherein the steering
2 mechanism is adapted to cause the distal assembly carrying electrodes to
3 contact body tissue within the crevasse between the inferior vena cava and
4 tricuspid annulus.

1 29. An apparatus as claimed in claim 27, wherein the steering
2 mechanism is adapted to cause the distal assembly carrying electrodes to
3 exert increased force against body tissue.

1 30. A catheter, comprising:
2 a hollow catheter body having a side wall and an aperture
3 extending through a predetermined portion of the side wall;
4 at least one internal component located within the catheter
5 body; and
6 adhesive material located within the hollow catheter body such
7 that at least a portion of the adhesive material is in the vicinity of the side wall
8 aperture, the adhesive material securing the hollow catheter body to the at
9 least one internal component.

1 31. A catheter as claimed in claim 30, wherein the at least one
2 internal component comprises a guide coil.

1 32. A catheter as claimed in claim 30, wherein the at least one
2 internal component comprises a steering center support.

1 33. A catheter as claimed in claim 30, wherein the at least one
2 internal component comprises a sleeve covering at least a portion of the
3 steering center support.

1 34. A catheter as claimed in claim 30, wherein the adhesive material
2 extends around the periphery of the internal component.

1 35. A catheter as claimed in claim 30, wherein the catheter body
2 defines a proximal end and a distal end and the side wall aperture is located
3 substantially adjacent to the proximal end.

1 36. A catheter as claimed in claim 30, wherein the catheter body
2 comprises a distal member and a proximal member secured to the distal
3 member and the side wall aperture is located in the proximal member.

1 37. A catheter as claimed in claim 36, wherein the distal member
2 includes at least one energy transmission element.

1 38. A catheter as claimed in claim 37, wherein the at least one
2 energy transmission element comprises a tip energy transmission element,
3 and the at least one internal component is connected to the tip energy
4 transmission element.

1 39. A catheter as claimed in claim 30, further comprising:
2 a torque transfer device located within at least a portion of the
3 adhesive material and adapted to engage at least a portion of the at least one
4 internal component and transfer torque to the at least one internal
5 component.

1 40. A catheter, comprising:
2 a hollow catheter body proximal member defining a distal
3 region;
4 a hollow catheter body distal member defining a proximal
5 region, the distal and proximal members being respectively located such that
6 one of the distal region of the proximal member and the proximal region of the
7 distal member overlaps the other, thereby creating an overlapping region;
8 a bond at the overlapping region securing the proximal member
9 to the distal member; and
10 at least one internal component located within at least the distal
11 member.

1 41. A catheter as claimed in claim 40, wherein the bond comprises
2 a thermal bond.

1 42. A catheter as claimed in claim 40, wherein the proximal member
2 includes a side wall having an aperture formed therein.

1 43. A catheter as claimed in claim 42, further comprising:
2 adhesive material connecting the proximal member to the at
3 least one internal component, at least a portion of the adhesive material being
4 in the vicinity of the side wall aperture.

1 44. A catheter as claimed in claim 40, wherein the at least one
2 internal component comprises a guide coil.

1 45. A catheter as claimed in claim 40, wherein the at least one
2 internal component comprises a steering center support.

1 46. A catheter as claimed in claim 45, wherein the at least one
2 internal component comprises a sleeve covering at least a portion of the
3 steering center support.

1 47. A catheter as claimed in claim 40, wherein the adhesive extends
2 around the periphery of the internal component.

1 48. A catheter as claimed in claim 40, wherein the distal member
2 includes at least one energy transmission element.

1 49. A catheter as claimed in claim 48, wherein the at least one
2 energy transmission element comprises a tip energy transmission element,
3 and the at least one internal component is connected to the tip energy
4 transmission element.